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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,796	07/14/2003	Che-Hua Yang	YANG3145/EM	4085

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EXAMINER

CHOW, CHARLES CHIANG

ART UNIT	PAPER NUMBER
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2685

DATE MAILED: 02/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/617,796

Applicant(s)

YANG ET AL.

Examiner

Charles Chow

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Detailed Action

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-3, 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda (US 4,641,053) in view of Adiga et al. (US 2003/0127,535 A1).

Regarding **claim 1**, Takeda has taught an ultrasonic nebulizer [Fig. 3] for producing high volume sub-micron droplets, by emitting minute droplets ejected through nozzle 24 [col. 4, lines 54-61] comprising

an ac/dc converter [11, 3, Fig. 1] for rectifying an ac current to a dc current and providing a dc voltage [col. 2, lines 54-63],

an oscillator circuit [1, 24, 25] powered by said dc voltage [p] for producing an oscillation signal [col. 3, lines 48-66],

an amplifier device [transistor 21] being connected to said oscillator circuit [transistor connected to oscillator 1, capacitors 23, 24, 24 & coil 22, Fig. 1] for amplifying the oscillation signal [21 provides oscillating amplitude based on feedback, col. 3, lines 59-66].

a nebulization chamber [21, Fig. 3] having a lower face for holding a liquid to be nebulized [col. 4, lines 48-61]; and

at least one piezoelectric ceramic oscillator formed on lower face of sad nebulization chamber [col. 4, lines 54-56, Fig. 3] and being electrically connected to the amplified signal to provide an ultrasonic output to cause nebulization for producing high volume sub-micron droplets [in response to the ultrasonic energy from oscillator 2 in Fig. 1, the liquid rises in

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column 23, for atomizing high volume of minute droplets ejected through nozzle 24, col. 4, lines 56-61].

Takeda mentioned oscillator frequency of 2 MHz [col. 1, lines 9-14], but fails to teach further of the oscillating frequency which is large than or equal to 3 MHz.

Adiga et al. (Adiga) teaches these features [by modifying oscillation frequency for 3 MHz or oscillating at a frequency of 20 MHz, paragraph 0042, paragraph 0042, equation in paragraph 0037; producing very fine droplets of less than one micron in paragraph 0044], in order to very fine droplets by high frequency oscillation. Therefore, It would have been obvious to one of ordinary skill in the art at the time of invention to upgrade Takeda's oscillation frequency with Adiga's high frequency of oscillation, in order to produce very fine mist of droplets.

Regarding **claim 2**, Takeda teaches the wherein the ac/dc converter [11, 3] comprises a register [capacitor 33] and four diodes [32a-32d] forming a whetstone bridge for rectifying the ac current [col. 2, lines 54-63].

Regarding **claim 3**, Takeda teaches the ultrasonic nebulizer 20 for producing high volume droplets [the emitting minute droplets ejected through nozzle 24, col. 4, lines 54-61]. Adiga teaches the sub-micron droplets [the very fine droplets of less than one micron, paragraph 0044], wherein the oscillator circuit comprises a plurality of resistors [41a/b, variable resistor 43, Fig. 3], a plurality of capacitors [24, 25], a variable resistor [43] and an oscillator 1 for producing oscillation signal [col. 3, lines 48-66].

Regarding **claim 5**, Adiga teaches the wherein the frequency of oscillation is equal to or larger than 3 MHz [by modifying oscillation frequency for 3 MHz or oscillating at a frequency of 20 MHz, paragraph 0042].

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2. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda in view of Adiga, as applied to claim 1 above, and further in view of Kawai (US 5,136,199). and Takahashi et al. (US 4,338,576).

Regarding **claim 4**, Takeda teaches the ultrasonic nebulizer for producing high volume droplets & Adiga teaches very fine submicron droplets [less than one micron, paragraph 0044].

Takeda teaches the wherein the amplifying device [21, Fig. 1] comprises, a plurality of capacitors [24, 25], a inductor [22].

Takeda & Adiga fails to teach the plurality of inductances.

Takahashi et al. (Takahashi) teaches the inductors 24, 25 for amplifier 23 [Fig. 4,/Fig. 5, col. 3, line 12 to col. 4, line 5], in order to reduce the noise [col. 1, lines 7-11]. Therefore, It would have been obvious to one of ordinary skill in the art at the time of invention to upgrade Takeda, Adiga, with Takahashi's high frequency oscillator with inductors 24, 25, in order to reduce the noise interference.

Takeda, Adiga & Takahasi fail to teach the amplifying device comprising a resistor & diode.

Kawai teaches the an amplifying device 18 in Fig. having a resistor 17 & a diode 26 [col. 3, lines 46-52] for discharging quickly through diode 16. Therefore, It would have been obvious to one of ordinary skill in the art at the time of invention to upgrade Takeda, Adiga, Nakai with Kawai's diode, resistor, in order to discharging quickly via the diode.

Conclusion

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (571) 272-7889. The examiner can normally be reached on 8:00am-5:30pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (571) 272-7899. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow *CC*,

January 20, 2006.


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